

OPTO 22 SNAP PAC CONTROLLER & BRAIN COMPARISON CHART

Form 1677-180423

This table compares SNAP PAC controllers and brains using PAC firmware R9.5 and PAC Project R9.6 software (or higher).

FEATURE		SNAP PAC Controllers						SNAP PAC Brains			
		SW	Standalone		Rack-mounted			Ethernet		Serial	
		SofitPAC	SNAP-PAC-S1 SNAP-PAC-S1-FM	SNAP-PAC-S2	SNAP-PAC-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2 SNAP-PAC-EB2-FM	SNAP-PAC-SB1	SNAP-PAC-SB2
Runs PAC Control strategies		●	●	●	●	●	●				
Maximum PAC Control charts running at once (plus host task)		64	32	32	16	16	16				
Communication	Two independent Ethernet network interfaces (two IP addresses)	a	●	●	●	●	●				
	Two switched Ethernet network interfaces (one IP address) for multi-drop configuration							●	●		
	Total number of RS-232 serial ports	b	2	4 ^c	1	1	1	0	0	0	0
	Total number of RS-485 serial ports	b	1	4 ^c	0	0	0	0	0	1	1
Protocols	TCP/IP, UDP/IP	●	●	●	●	●	●	●	●		
	EtherNet/IP™ (Allen-Bradley® RSLogix® systems and others)		●	●	●	●	●	●	●		
	Modbus®/TCP (slave) ^d		●	●	●	●	●	●	●		
	OPC driver support	●	●	●	●	●	●	●	●	● ^f	● ^f
	RESTful API		●	●	●	●	●				
	HTTP/HTTPS		●	●	●	●	●				
	OptoMMP memory-mapped protocol	● ^g	●	●	●	●	●	●	●	●	●
	SNMP (network management)		●	●	●	●	●	●	●		
	FTP server, file system		●	●	●	●	●	●	●		
	FTP client	●	●	●	●	●	●				
SMTP (email client with authentication and attachments)	●	●	●	●	●	●					
Supports Node-RED via SNAP-PAC nodes and RESTful API			●	●	●	●	●				
Direct access to hard drive & network drives (Dropbox®, etc.)		●									
Realtime clock		a	●	●	●	●	●	●	●	●	●
Backup battery (recharges when brain has power) ^h			●	●	●	●	●	●	●	●	●
Physical RAM (MB)		a	32		16			16		16	
RAM available for Strategy (MB)		64	16		4			-		-	
Battery-backed RAM (MB)		8	8		2			-		-	
Flash memory (MB)		i	16		8			8		8	
Removable data storage (microSD card slot)		a	32 GB max. ^k		32 GB max. ^k						
32-bit processor		a	●	●	●	●	●	●	●	●	●
Floating-point unit (FPU)		a	●	●	●	●	●				
Power requirements		a	8–32 VDC ^l 10 W–11.3 W max		5.0 to 5.2 VDC @ 1.2–1.5 A			5.0 to 5.2 VDC @ 750 mA–1.0 A			
Operating Temperature in degrees C		a	-20 to 60		-20 to 60			-20 to 60			
Storage Temperature in degrees C			-40 to 85		-40 to 85			-40 to 85			
Humidity (non-condensing)		a	0–95%		0–95%			0–95%			
Compatible brains ⁿ	SNAP PAC EB brains	●	●	●	●	●	●				
	SNAP PAC SB brains		●	●							
Combination controller and I/O processor					●	●	●				
Mounts on SNAP PAC I/O mounting rack		n/a	n/a		●		●	●	●	●	●
Mounts on SNAP B-series I/O mounting rack		n/a	n/a			●					

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		SoftPAC	SNAP-PAC-S1 SNAP-PAC-S1-FM	SNAP-PAC-S2	SNAP-PAC-R1 SNAP-PAC-R1-FM	SNAP-PAC-R1-B	SNAP-PAC-R2 SNAP-PAC-R2-FM	SNAP-PAC-EB1 SNAP-PAC-EB1-FM	SNAP-PAC-EB2 SNAP-PAC-EB2-FM	SNAP-PAC-SB1	SNAP-PAC-SB2		
Maximum number of modules allowed on largest rack: Any mix of 16 digital, 16 analog, and 8 serial		n/a	n/a		o	o	•	•	•	•	p	p	
Digital I/O point features	Input latching	n/a	n/a		•	•	•	•	•	•	•	•	
	On/off status				•	•	•	•	•	•	•	•	
	Watchdog timer				•	•	•	•	•	•	•	•	
	High-speed counting (up to 20 kHz) ^q				•	•		•		•			
	Quadrature counting ^r				•	•		•		•		•	
	On-pulse & off-pulse measurement ^q				•	•		•		•		•	
	Frequency & Period measurement ^q				•	•		•		•		•	
	TPO (time-proportional output)				•	•	•	•		•	•	•	•
	Digital totalizing ^q				•	•	•	•		•	•	•	•
Pulse generation (continuous square wave, N pulses, on-pulse, off-pulse)	•	•	•	•		•	•	•	•				
Analog I/O point features	Thermocouple linearization (32-bit floating point for linearized values)	n/a	n/a		•	•	•	•	•	•	•	•	
	Minimum/maximum values				o	o	•	•	•	•	•		
	Offset and gain				•	•	•	•	•	•	•	•	
	Scaling				•	•	•	•	•	•	•	•	
	TPO (Time-proportional output) ^s				•	•	•	•		•	•	•	
	Output clamping				•	•	•	•		•	•	•	
	Filter weight				•	•	•	•		•	•	•	
	Watchdog timer				•	•	•	•		•	•	•	
	Analog totalizing ^t				•	•	•	•		•	•	•	
Ramping ^t	•	•	•	•		•	•	•					
PID logic (maximum 96 PID loops per controller or brain)					•	•	•	•	•	•	•		
Data logging					•	•	•	•	•	•	•		
Digital events, alarm events, serial events					•	•	•	•	•	•	u	u	
Event messaging					•	•	•	•	•				
UDP streaming of I/O data to host					•	•	•	•	•				
I/O point data mirroring and memory map copying					•	•	•	•	•				

- a As provided by the Microsoft Windows computer the software runs on.
- b SoftPAC cannot communicate through serial ports on the PC.
- c Serial ports are software configurable for RS-232 or RS-485.
- d PAC firmware >=R9.4b, 8 max connections. Lower firmware, 2 max connections.
- e Requires OptoOPCServer or third-party compatible OPC server.
- f Available with OptoOPCServer and PAC Control, through a SNAP PAC controller.
- g SoftPAC includes Status Read, Status Write, and Scratch Pad memory map areas.
- h Models manufactured before August 2007 and S1s with serial numbers 625653 and lower have user-replaceable backup batteries. See original user's guide.
- i Flash memory function implemented via a file; size is limited only by disk space.
- k PAC firmware 9.4a and loader 6.1a or higher. S-series with microSD & manufacture date older than 06/14 supports max. 2 GB microSD.
- l Units with serial numbers lower than 500,000 have an 8–24 VDC input voltage rating. *Verify voltage on the unit's faceplate before applying power.*

- n For compatibility with legacy Opto 22 hardware, see form #1693.
- o SNAP-PAC-R1s with serial numbers lower than 600,000, and all SNAP-PAC-R1-Bs: limited to eight 4-point digital modules per rack.
- p Not supported: serial, motion control, Profibus, & Wiegand modules.
- q Four-channel modules only; not high-density modules.
- r Requires a SNAP-IDC5Q quadrature input module.
- s Requires a SNAP analog TPO module (SNAP-AOD-29).
- t Requires a SNAP PAC controller and PAC Control commands.
- u Does not support serial events.